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New data on the subgenus *Harpopaederus* of the genus *Paederus* (Coleoptera, Staphylinidae, Paederinae) of mainland China

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Abstract

Paederus (*Harpopaederus*) *xui* Peng & Li, **sp. n.** (Sichuan: Micang Shan) is described. Additional records of five *Harpaederus* species are reported. All of these species are illustrated.

Keywords

Coleoptera, Staphylinidae, *Paederus*, *Harpopaederus*, new species, new records, mainland China

Introduction

The widely distributed genus *Paederus* Fabricius, 1775 was previously represented in China by 39 species (Li et al. 2014; Peng et al. 2014), ten of which were placed in the subgenus *Harpopaederus* Scheerpeltz, 1957 (type species: *Paederus schoenherri* Czwalina, 1889): *P. antennocinctus* Willers, 2001 (Sichuan, Gansu), *P. gottschei* Kolbe, 1886 (Heilongjiang, Jilin; North Korea; South Korea; Russia), *P. konfuzius* Willers, 2001 (Shaanxi, Gansu, Sichuan), *P. pseudobaudii* Aleksandrov, 1934 (Heilongjiang), *P. apfelsinicus* Willers, 2001 (Hubei, Shaanxi), *P. gracilacutus* Li & Zhou, 2007 (Shaanxi, Gansu), *P. lineodenticulatus* Li & Zhou, 2007 (Sichuan), *P. dangchangensis* Li & Zhou, 2007 (Gansu), *P. brevior* Li, Solodovnikov & Zhou, 2014 (Shaanxi) and

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P. multidenticulatus Li, Solodovnikov & Zhou, 2014 (Hubei) (Li and Zhou 2007; Li et al. 2014; Smetana 2004; Willers 2001a, b).

In recent years numerous *Harpopaederus* specimens were collected during several field trips. Six species were identified, one of which is described for the first time.

Material and methods

The material treated in this study is deposited in the following collections:

SNUC Insect Collection of Shanghai Normal University, Shanghai
cAss private collection Volker Assing, Hannover
cSch private collection Michael Schülke, Berlin

The following abbreviations are used in the text, with all measurements in millimeters:

Body length (BL) from the anterior margin of the labrum to the abdominal apex; forebody length (FL) from the anterior margin of the labrum to the posterior margin of the elytra; head length (HL) from the anterior clypeal margin to the occipital constriction; head width (HW): maximum width of head; length of antenna (AnL); length of pronotum (PL) along midline; maximum width of pronotum (PW); elytral length (EL) at the suture from the apex of the scutellum to the posterior margin of the elytra (at the sutural angles); maximum width of the elytra (EW); maximum width of abdomen (AW); length of aedeagus (AL) from the apex of the dorsal plate to the base of the aedeagal capsule.

Results

Paederus (*Harpopaederus*) *apfelsinicus* Willers, 2001

Figs 1A, 2A, G–J

Material studied. China: Hubei: 1 ♀, Shennongjia, Xiaolongtan, 05.VIII.2002, Li & Tang leg. (SNUC).

Comment. The above specimen was collected near the type locality of this species. The female external and sexual characters are illustrated in Figs 1A, 2A, 2G–J. For illustrations of the male sexual characters see Willers (2001a).

Paederus (*Harpopaederus*) *brevior* Li, Solodovnikov & Zhou, 2014

Figs 1B, 2B, 3

Material studied. China: Shaanxi: 4 ♂♂, 2 ♀♀, Ningshan Hsien, Huoditang, 33°26'N, 108°26'E, 1724 m, 24–25.V.2008, Huang & Xu leg. (SNUC); 1 ♂, 1 ♀, Zhouzhi Hsien,

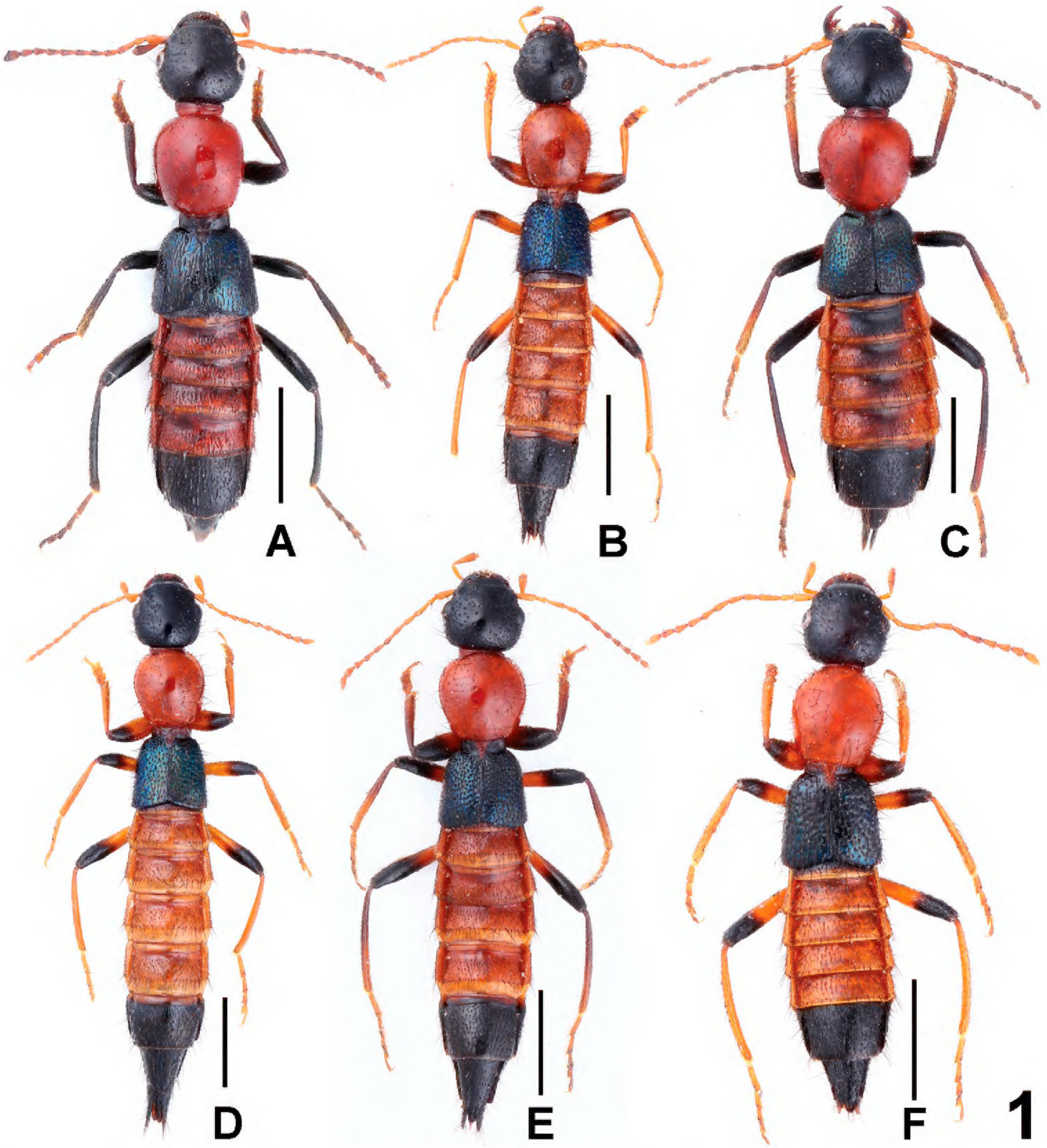

Figure 1. Habitus, **A** *P.* (*Harpopaederus*) *apfelsinicus* **B** *P.* (*H.*) *brevior* **C** *P.* (*H.*) *gottschei* **D** *P.* (*H.*) *gracilacutus* **E** *P.* (*H.*) *konfuzius* **F** *P.* (*H.*) *xui*. Scale bars: 2.0 mm.

Houzhenzi, 33°51'N, 107°50'E, 1260 m, 05.V.2008, Huang & Xu leg. (SNUC); 1 ♂, 1 ♀, Ningshan Hsien, Huoditang, 33°26'N, 108°27'E, 1500–1700 m, 12.VII.2012, Yu-Hong Pan leg. (SNUC); 7 ♂♂, 3 ♀♀, Foping Hsien, Foping Nature Reserve, 33°38'N, 107°58'E, 1250–1400 m, 18.VII.2004, Hu, Tang & Zhu leg. (SNUC).

Comment. The original description of *P. brevior* is based on five type specimens from "Qinling Shan 6 km, E Xunyangba 1000–1300 m" (Li et al. 2014). The illustrations of the aedeagus provided in the original description leave no doubt that the above specimens are conspecific with the types. The external and sexual characters are illustrated in Figs 1B, 2B, 3.

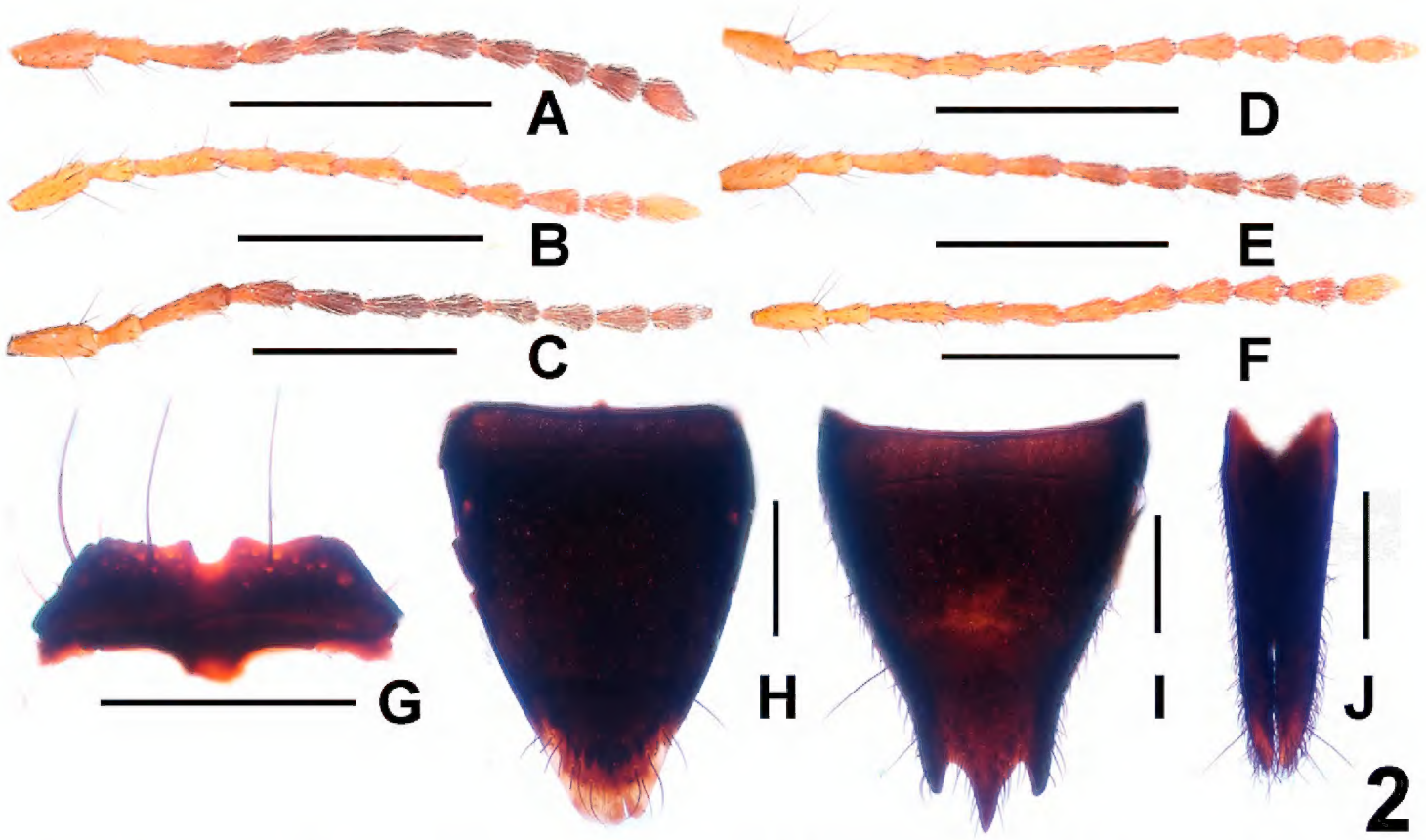

Figure 2. Antenna (**A**–**F**) and *Paederus apfelsinicus* (**G**–**J**), **A** *P. apfelsinicus* **B** *P. brevior* **C** *P. gottschei* **D** *P. gracilacutus* **E** *P. konfuzius* **F** *P. xui*; **G** female labrum **H** female tergite VIII **I** female sternite VIII **J** female tergite IX. Scale bars: **A**–**F** 1.0 mm; **G**–**J** 0.5 mm.

Paederus (*Harpopaederus*) *gottschei* Kolbe, 1886

Figs 1C, 2C, 4

Material studied. China: Jilin: 1 ♂, 2 ♀♀, Changbai Shan, 25.VII.2004, Li-Zhen Li leg. (SNUC).

Comment. The currently known distribution ranges from the Russian Far East and northern China (Heilongjiang, Jilin) to North and South Korea. The external and sexual characters are illustrated in Figs 1C, 2C, 4.

Paederus (*Harpopaederus*) *gracilacutus* Li & Zhou, 2007

Figs 1D, 2D, 5

Material studied. China: Shaanxi: 5 ♂♂, 1 ♀, Nanzheng Hsien, Liping National Forest Park, 35°50'N, 106°36'E, 1400–1600 m, 15.VII.2012, Chen, Li, Ma & Zhao leg. (SNUC); 4 ♂♂, 1 ♀, Zhouzhi Hsien, Houzhenzi, Sangongli Gou, 33°51'N, 107°49'E, 1336 m, 17–19.V.2008, Huang & Xu leg. (SNUC).

Comment. Although the original description is based exclusively on type specimens from Gansu, Li and Zhou (2007), who repeatedly state that the distribution also includes Shaanxi. The above material, whose identification is based on the illustrations provided in the original description, represents the first confirmed records from Shaanxi.

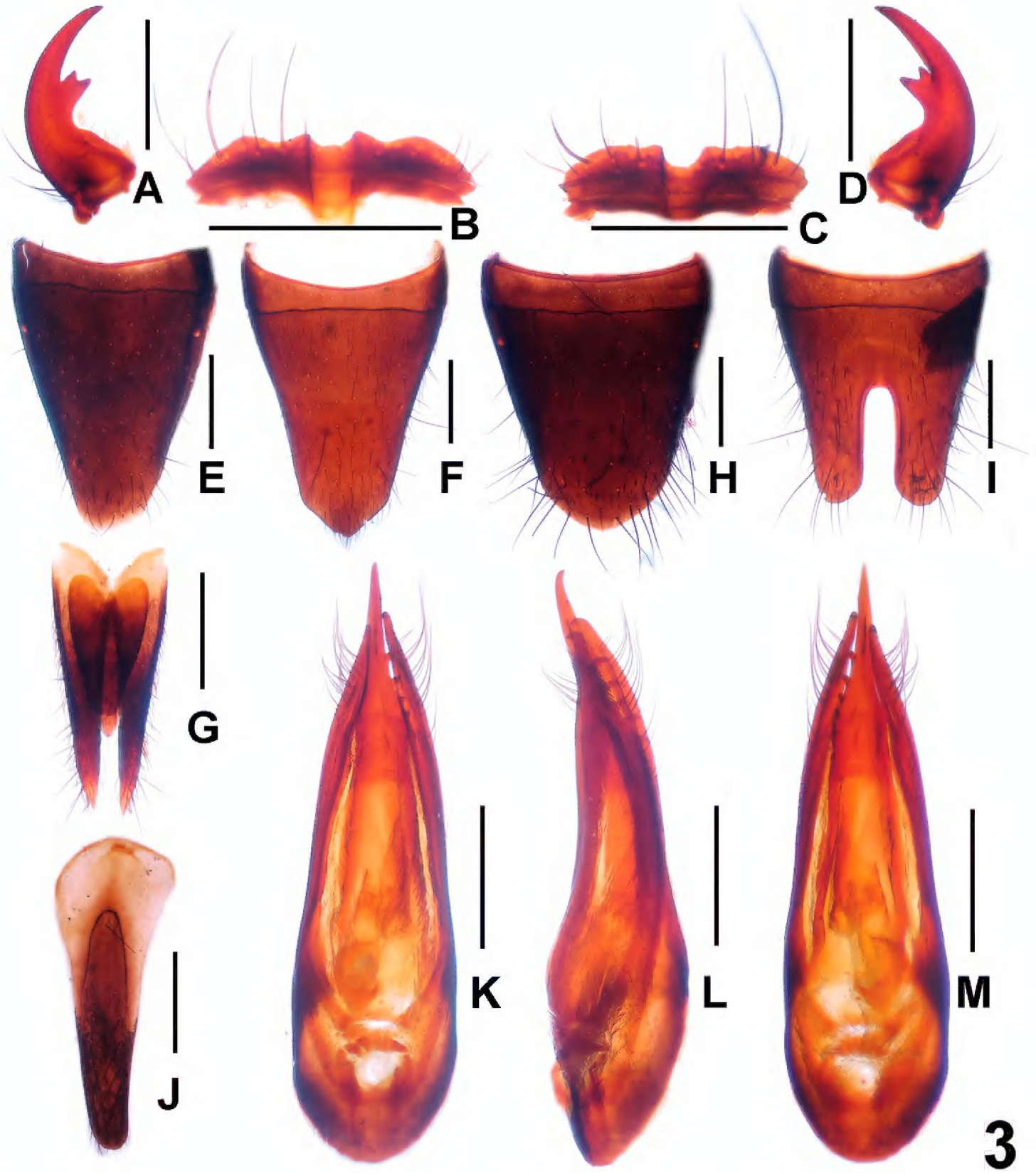

Figure 3. *Paederus brevior*. **A** male left mandible **B** male labrum **C** female labrum **D** male right mandible **E** female tergite VIII **F** female sternite VIII **G** female tergite IX **H** male tergite VIII **I** male sternite VIII **J** male sternite IX **K** aedeagus in ventral view **L** aedeagus in lateral view **M** aedeagus in dorsal view. Scale bars: 0.5 mm.

Paederus (*Harpopaederus*) *konfuzius* Willers, 2001

Figs 1E, 2E, 6

Material studied. China: Shaanxi: 6 ♂♂, Ningshaan Hsien, Pingheliang, 33°28'N, 108°29'E, 2100 m, 13.VII.2012, Chen, Li, Ma & Zhao leg. (SNUC); 1 ♂, 4 ♀♀,

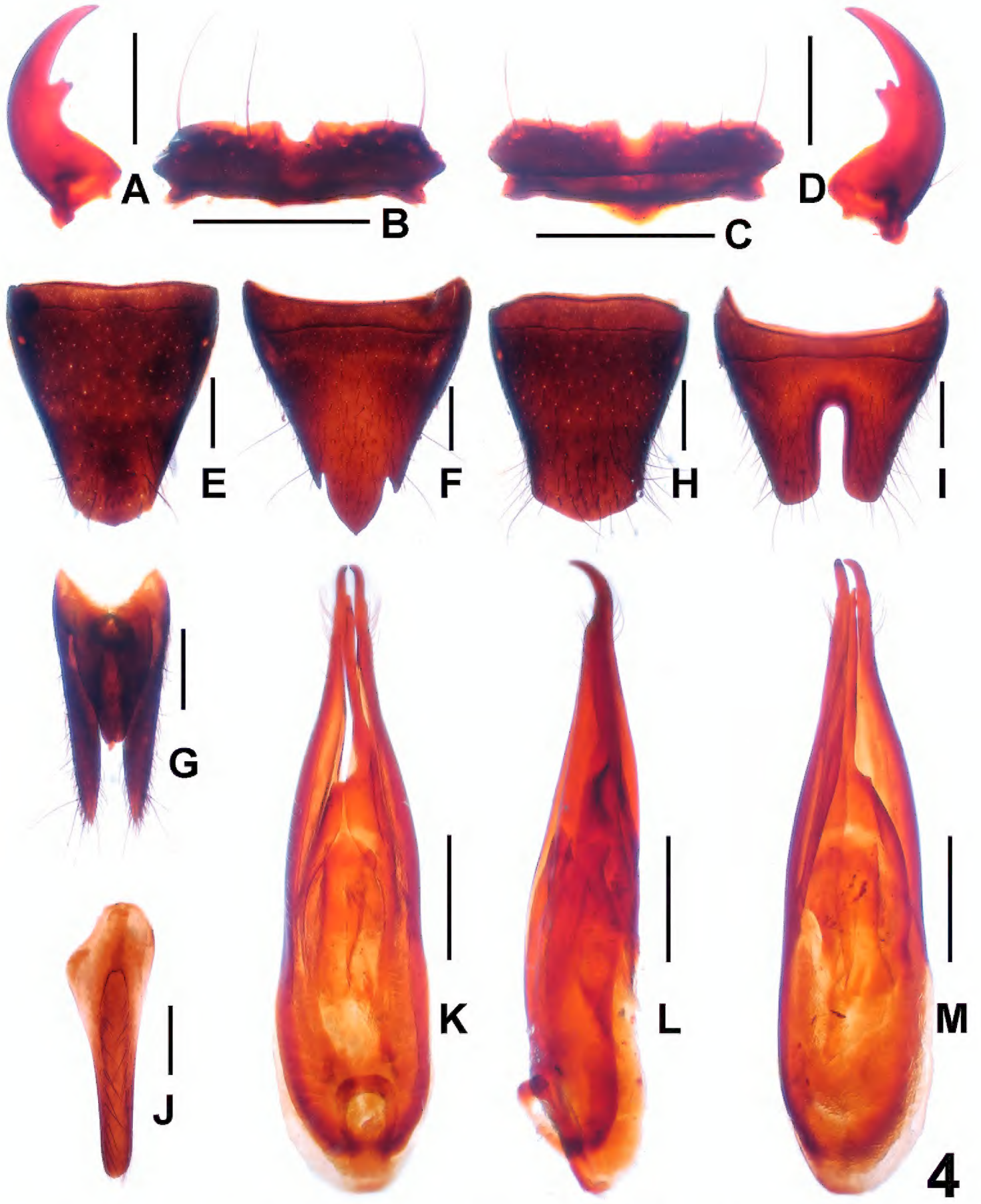

Figure 4. *Paederus gottschei*. **A** male left mandible **B** male labrum **C** female labrum **D** male right mandible **E** female tergite VIII **F** female sternite VIII **G** female tergite IX **H** male tergite VIII **I** male sternite VIII **J** male sternite IX **K** aedeagus in ventral view **L** aedeagus in lateral view **M** aedeagus in dorsal view. Scale bars: 0.5 mm.

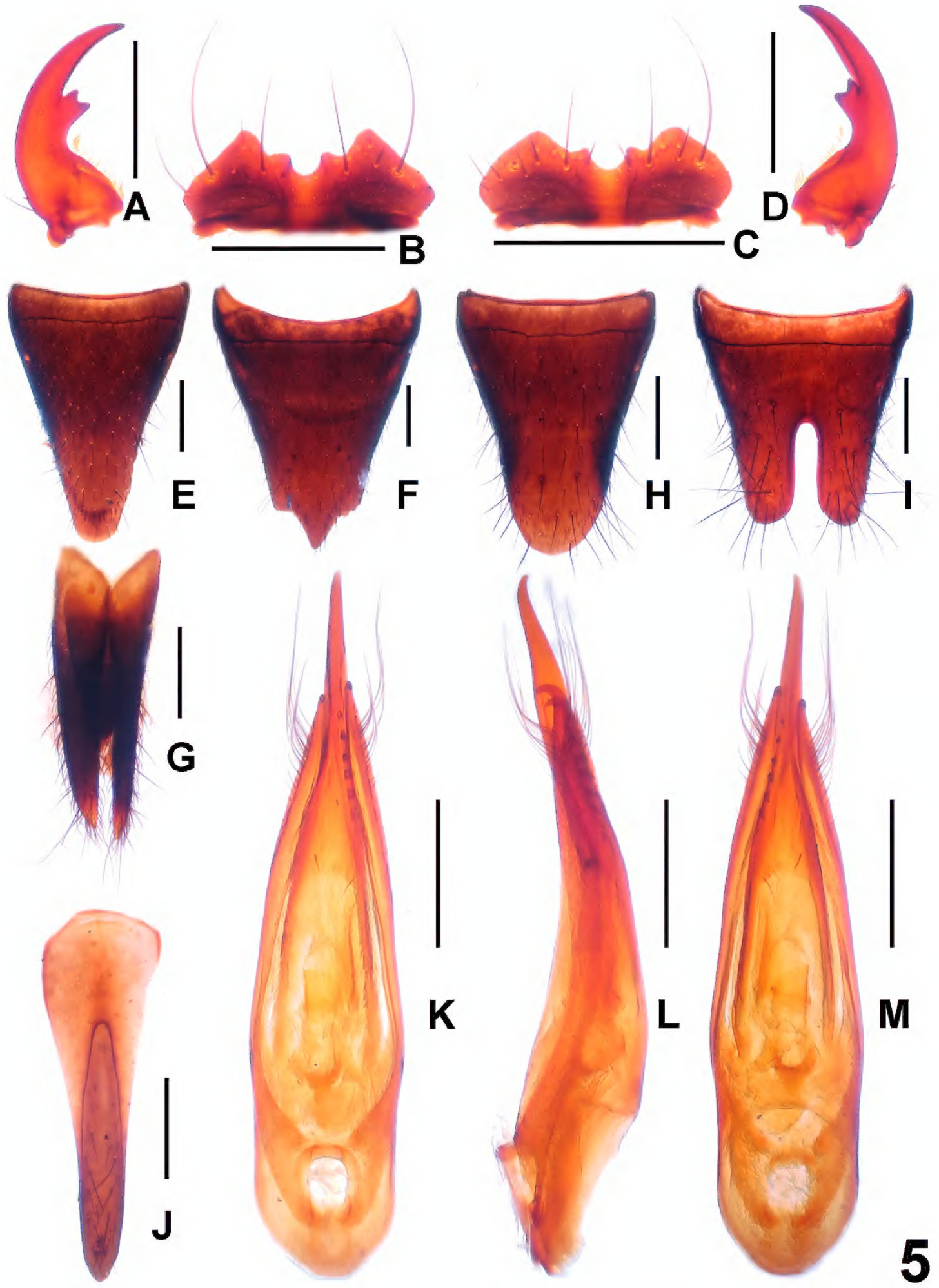

Figure 5. *Paederus gracilacutus*. **A** male left mandible **B** male labrum **C** female labrum **D** male right mandible **E** female tergite VIII **F** female sternite VIII **G** female tergite IX **H** male tergite VIII **I** male sternite VIII **J** male sternite IX **K** aedeagus in ventral view **L** aedeagus in lateral view **M** aedeagus in dorsal view. Scale bars: 0.5 mm.

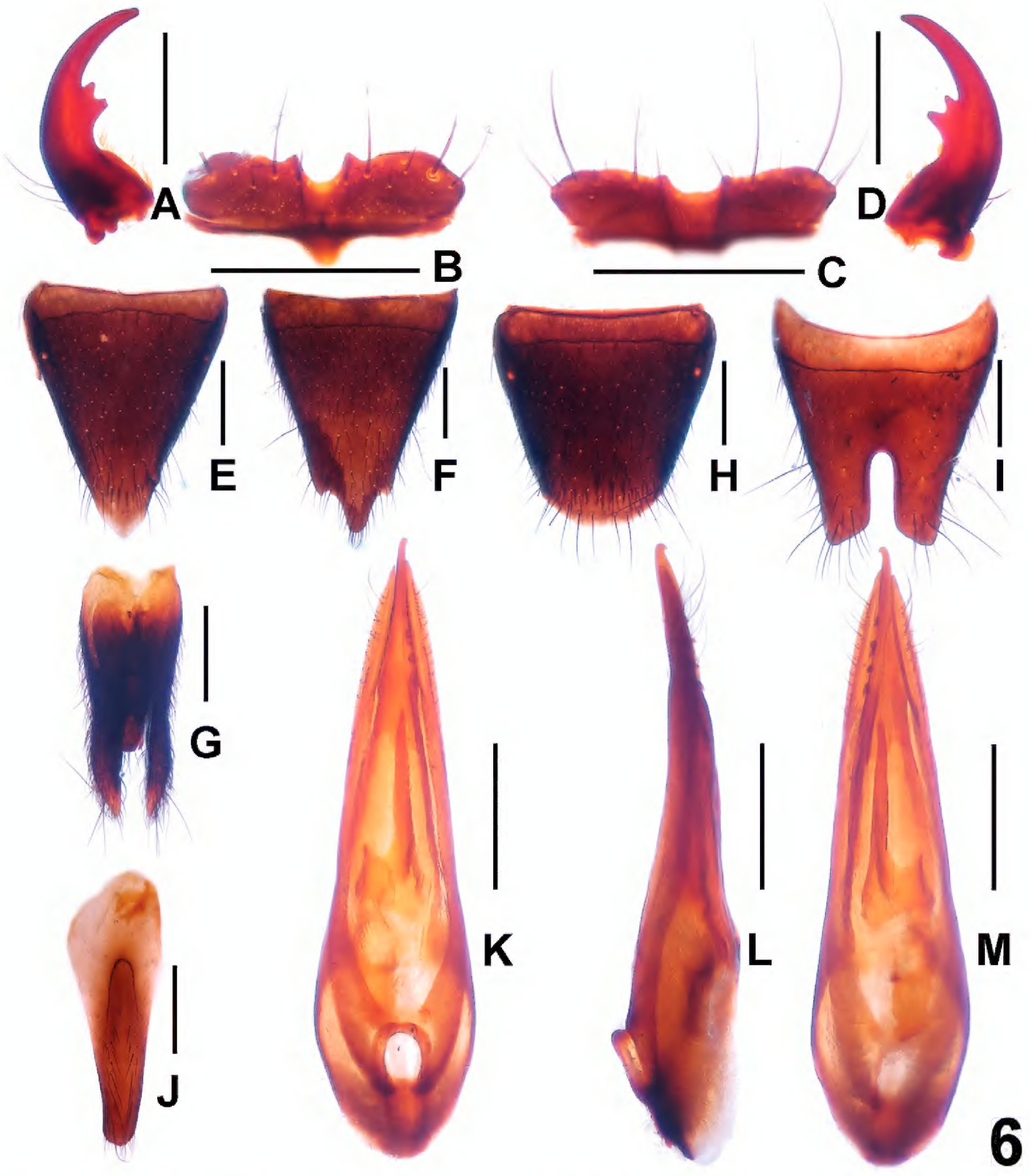

Figure 6. *Paederus konfuzius*. **A** male left mandible **B** male labrum **C** female labrum **D** male right mandible **E** female tergite VIII **F** female sternite VIII **G** female tergite IX **H** male tergite VIII **I** male sternite VIII **J** male sternite IX **K** aedeagus in ventral view **L** aedeagus in lateral view **M** aedeagus in dorsal view. Scale bars: 0.5 mm.

Zhouzhi Hsien, Daoban, 33°44'N, 107°58'E, 1900 m, 04.V.2008, Huang & Xu leg. (SNUC); 1 ♂, 1 ♀, Zhouzhi Hsien, Houzhenzi, Qinlingliangxia, 33°49'N, 107°44'E, 1820 m, 18.V.2008, Huang & Xu leg. (SNUC); 3 ♀♀, Mei Hsien, Taibai Shan, 34°01'N, 107°51'E, 1853 m, 22–23.V.2008, Huang & Xu leg. (SNUC).

Comment. The original description is based on 13 type specimens from the Qinling Shan, Shaanxi (Willers 2001b). Li and Zhou (2007) recorded this species from Gansu and Sichuan, but did not specify the localities.

***Paederus* (*Harpopaederus*) *xui* Peng & Li, sp. n.**
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Figs 1F, 2F, 7

Type material. Holotype: ♂, labelled 'China: Sichuan Province, Nanjiang Hsien, Micang Shan, Daba, 32°40'N, 107°02'E, 1800 m, 27.IV.2008, Huang & Xu leg.' (SNUC). Paratypes: 2 ♂♂, 3 ♀♀, same label data as holotype (SNUC); 1♀ [teneral]: 'CHINA (S.Shaanxi) Micang Shan, 33 km S Hanzhong, 32°44'44"N, 106°52'46"E 1360 m (stream valley, forest margin with tall herbaceous vegetation, pitfall traps, vinegar) 15.-16.VIII.2012 D.W. Wrase [30A]' (cSch); 2♀♀: 'CHINA: S-Shaanxi [CH12-31], Micang Shan, 40 km SW Hanzhong, 32°52'25"N, 106°37'11"E, 1530 m, N-slope, mixed secondary forest, litter and moss sifted, 16.VIII.2012, leg. M. Schülke' (cSch, cAss).

Description. Measurements (in mm) and ratios: BL: 8.67–9.34; FL: 4.72–4.95; HL: 0.93–0.98; HW: 1.07–1.11; AnL: 2.72–2.95; PL: 1.23–1.26; PW: 1.10–1.13; EL: 0.87–0.94; EW: 1.13–1.20; AW: 1.74–1.77; AL: 1.38–1.41; HL/HW: 0.84–0.87; HW/PW: 0.96–0.98; HL/PL: 0.76–0.78; PL/PW: 1.10–1.13; EL/PL: 0.71–0.75; diameter of eye: 0.34–0.36.

Habitus as in Fig. 1F. Coloration: head, labrum and apical segments black, labial palpi and antennae yellowish brown; pronotum brownish red; elytra blackish blue with metallic luster; first four abdominal segments reddish brown; legs yellowish brown, with apical halves of femora black.

Head wider than long, widest across eyes; punctation coarse and sparse; interstices glossy. Mandibles without distinct sexual dimorphism. Eyes distinctly convex. Antenna as in Fig. 2F.

Pronotum nearly oviform, strongly convex in cross-section; punctures somewhat sparser and shallower than those of head.

Elytra trapeziform; punctation coarse, defined and dense. Hind wings reduced. Metatarsomere I as long as combined length of metatarsomeres II and III.

Abdomen distinctly broader than elytra; punctation coarse; interstices with very shallow microsculpture; posterior margin of tergite VII without palisade fringe.

Male. Anterior margin of labrum (Fig. 7B) distinctly sinuate; each mandible (Fig. 7A, D) with single bicuspidate tooth. Posterior margin of tergite VIII (Fig. 7H) convex; sternite VII unmodified; sternite VIII (Fig. 7I) with deep posterior incision, this incision approximately 0.4 times as long as sternite VIII; sternite IX as in Fig. 7J; aedeagus as in Fig. 7K–M; dorsal plate of median lobe nearly symmetric, long and slender; parameres very slender and curved apically; internal sac without sclerotized spines.

Female. Labrum as in Fig. 7C. Posterior margin of tergite VIII (Fig. 7E) truncate; posterior margin of sternite VIII (Fig. 7F) with narrowly triangular median process; tergites IX and X as in Fig. 7G.

Distribution and natural history. The type locality is situated in the Micang Shan to the north of Nanjiang, northern Sichuan. The specimens were sifted from leaf litter in a mixed deciduous forest at an altitude of 1,800 m.

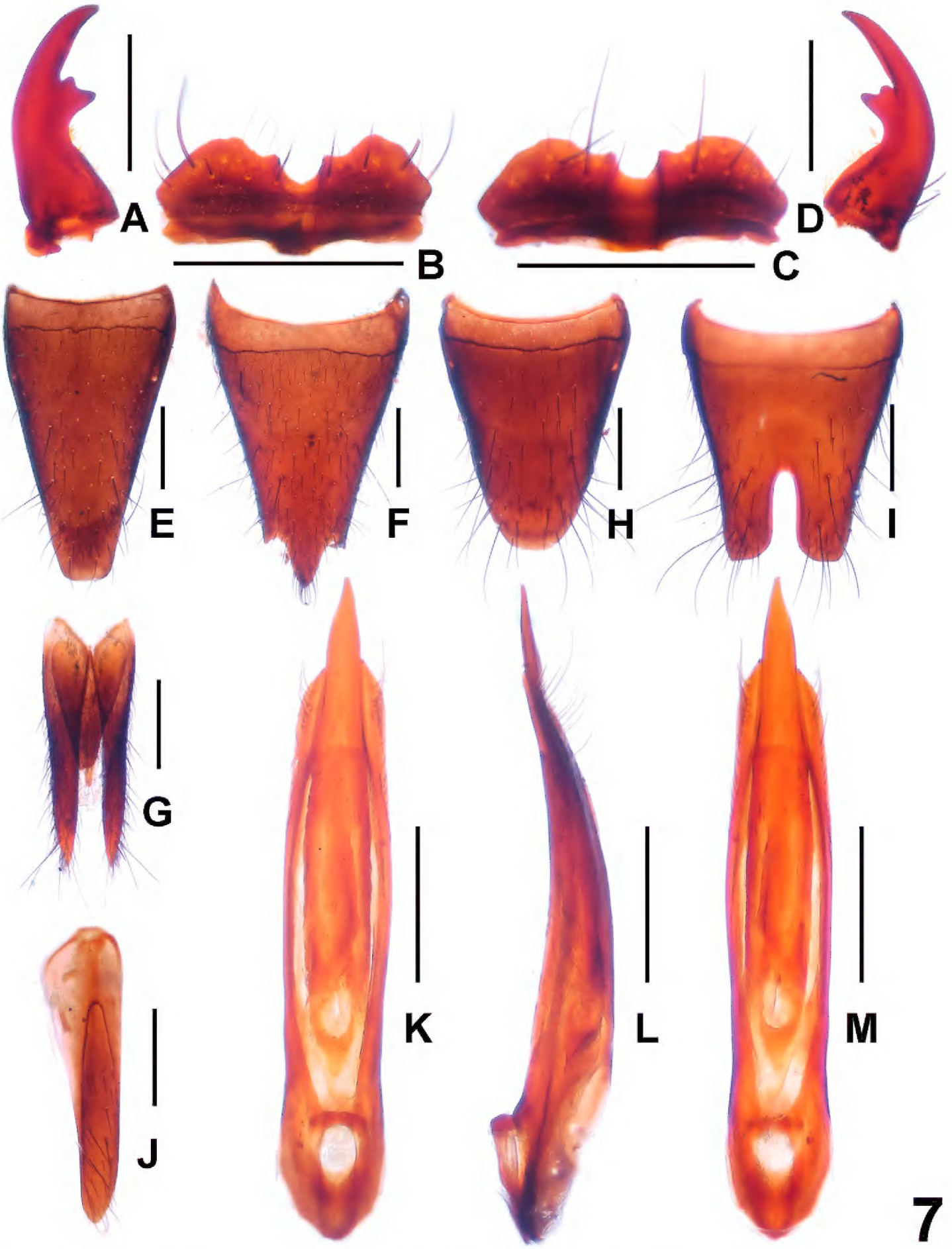

Figure 7. *Paederus xui*. **A** male left mandible **B** male labrum **C** female labrum **D** male right mandible **E** female tergite VIII **F** female sternite VIII **G** female tergite IX **H** male tergite VIII **I** male sternite VIII **J** male sternite IX **K** aedeagus in ventral view **L** aedeagus in lateral view **M** aedeagus in dorsal view. Scale bars: 0.5 mm.

Etymology. The species is dedicated to Wang Xu, who collected some of the type specimens.

Comparative notes. As can be inferred from the highly similar sexual characters, the new species is allied to the geographically close *P. antennocinctus* Willers, 2001 (Sichuan: Jiuzhaigou; Gansu: Qiujia Dam), from which it differs by the coloration of legs, the somewhat smaller size, the shape of the labrum, the longer dorsal plate of the aedeagus and the nearly trifurcate posterior margin of the female sternite VIII.

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